

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

E. NORRIS TOLSON
SECRETARY

MEMORANDUM TO: Len Sanderson, PE
FROM: Len Hill, PE *Len Hill*
DATE: March 10, 1998
SUBJECT: Proposed Glover Road From Ellis Road to US 70, including an Interchange with NC 147 in Durham County

The Design Branch was asked to look at the feasibility and cost of the subject project (Attachment 1). This request resulted from a December 12, 1997 meeting with NCDOT, Durham officials, and others (Attachment 2). The Roadway Design Unit has completed a study and their comments are attached (Attachment 3). Attachment 4 is some estimated traffic projections.

The proposed half-clover interchange has undesirable spacing and weaving distances with the proposed East End Connector interchange (TIP U-71). Given the close interchange spacing with U-71, we do not recommend an interchange at Glover Road. It is possible to add an interchange. However, braided ramps or a collector-distributor road is needed for adequate traffic operation.

Please contact me if we need to discuss.

RLH:st

Attachments

cc/att: Don Morton, PE
Tom Shearin, PE
Ron Poole, PE
Dave Modlin, PE
Wesley Parham, City of Durham



2/98

SOUTHWEST DURHAM ASSEMBLAGE MEETING WITH NCDOT 12/5/97 11:00 AM

ATTENDEES

- | | |
|---|---------------------------------------|
| 1) Ginny Bowman
Northgate Associates | NCDOT
Carolyn Grant
Larry Goode |
| *2) Hager Rand
DCCBC | |
| *3) Blaine Miller
Cherokee Sanford | |
| *5) Leonard Shaffer, Chip Radford, and Norm Dunfee
Joven Properties of NC, Inc | |
| 6) George Wells and Al Wilford
Kinney Horn and Associates, Inc.
Transportation Consultant | |
| 7) Tom White and Patrick Byker
Durham Chamber of Commerce | |
| 8) Mark Aronson
City of Durham Traffic Engineering | |

*Property Owners



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E. NORRIS TOLSON
SECRETARY

MEMORANDUM TO: Len Hill, PE
State Design Engineer

FROM: John Alford, PE *John Alford*
Project Engineer

DATE: March 4, 1998

SUBJECT: Potential Glover Road/NC 147 Interchange
Estimates - Durham County

As requested, we have completed the feasibility designs and construction cost estimates for the potential Glover Road/NC 147 interchange. Our findings are as follows;

- The distance between Glover Road and the US 70 Connector, located to the North, is approximately 3500 feet. If an interchange is provided, it should be constructed as a half-clover interchange and be located on the south side of Glover Road. This would provide the maximum possible weaving distance between the NC 147/US 70 Connector interchange and the Glover Road interchange.
- Capacity and weaving analysis were performed utilizing 2025 traffic projections.
- A weaving distance of approximately 3000 feet, Glover Road to the Connector, can be provided for the NC 147 northbound traffic. This will provide a level of service D weave.
- A weaving distance of approximately 2800 feet, Connector to Glover Road, can be provided for the NC 147 southbound traffic. This will provide a level of service F weave. This weave is difficult to fully analyze, a left-hand entrance crossing over to a right hand exit.
- The intersection of 5-lane Glover Road and the interchange ramps will operate at an overall level of service B.
- The left turn volume of Westbound Glover Road onto the loop for northbound NC 147 is 384 VPH. This volume suggests a dual left turn lane be provided onto the loop. The additional costs for this were not included in the construction cost estimates.



Len Hill, PE
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- The construction cost estimate for a 2-lane shoulder section along Glover Road with the half-clover interchange at NC 147 is \$9,800,000. The interchange cost is \$4,100,000, excluding the overpass bridge. (See attached estimate.)
- The construction cost estimate for a 5-lane curb and gutter section and sidewalks along both sides of Glover Road with the half-clover interchange at NC 147 is \$14,800,000. The interchange cost is 3,600,000, excluding the bridge. (See attached estimate.)
- Right of way estimates were not prepared.
- The addition of this interchange would place four interchanges within a distance of approximately 2.9 miles. The existing interchanges are Ellis Road, US 70 Connector, and Briggs Avenue.

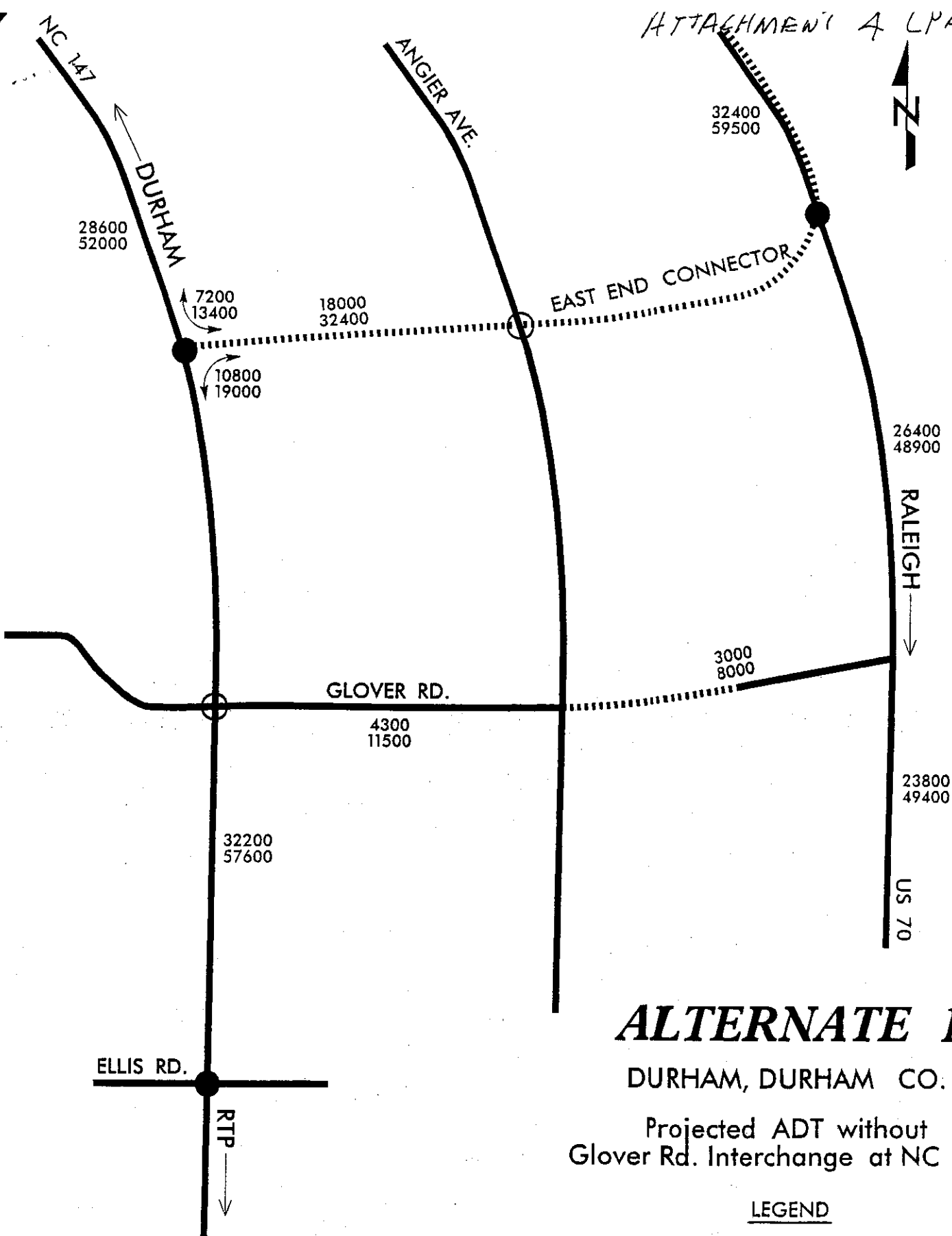
Due to the close spacing and the unacceptable weaving distance between Glover Road and the US 70 Connector interchange, we do not recommend the addition of this interchange. The weave for the left-hand Connector entrance which must merge to the right to exit at Glover Road is the primary safety concern.

Please contact me if you have any questions or if additional information is needed.

JEA

Attachments

cc: Don Morton, PE
Tom Shearin, PE



ALTERNATE 1

DURHAM, DURHAM CO.

Projected ADT without
Glover Rd. Interchange at NC 147

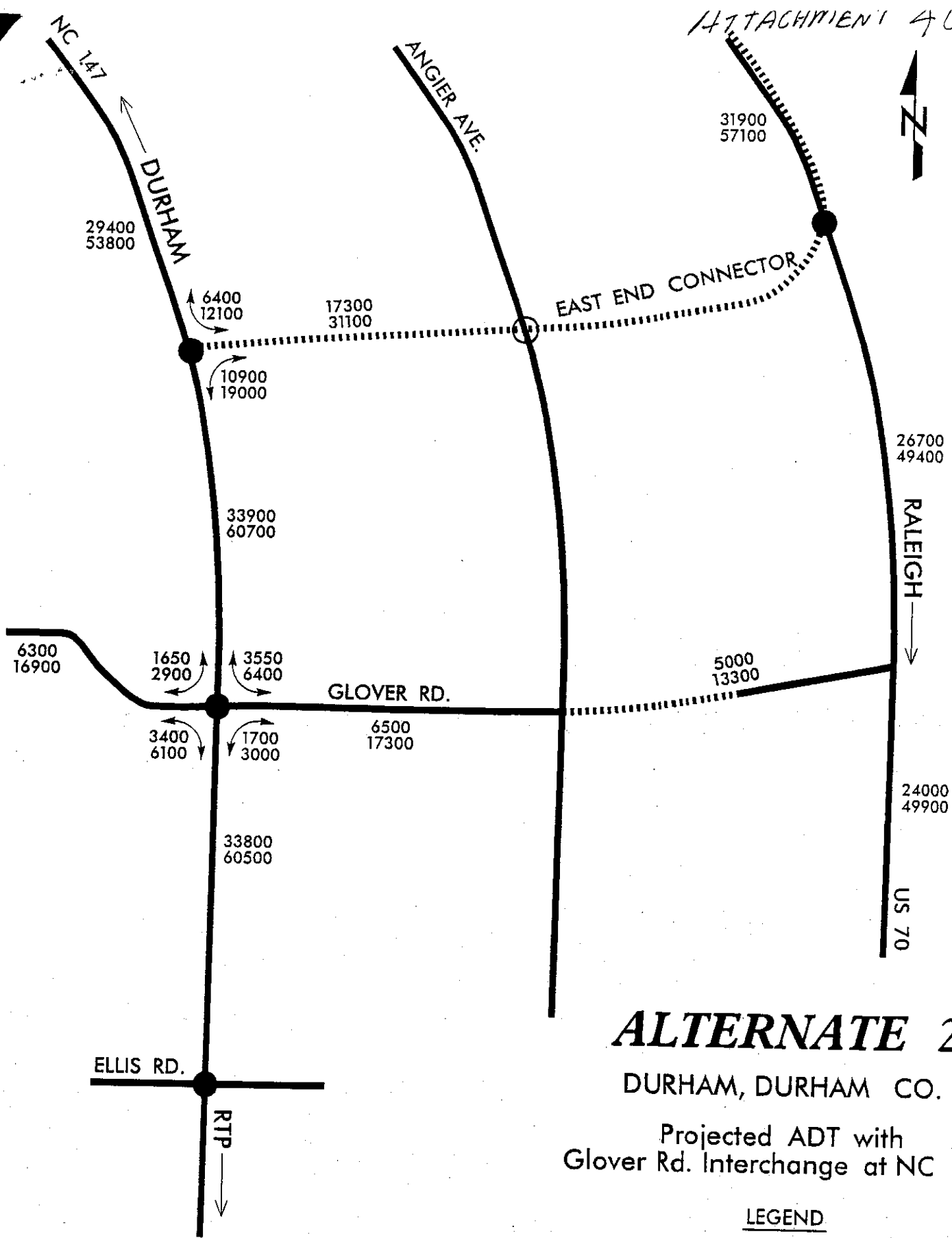
LEGEND

- Interchange
- Grade Separation

00000 1995 ADT
00000 2025 ADT

NOT TO SCALE

Updated 2/18/98



ALTERNATE 2

DURHAM, DURHAM CO.

Projected ADT with
Glover Rd. Interchange at NC 147

LEGEND

- Interchange
- Grade Separation

00000 1995 ADT
00000 2025 ADT

NOT TO SCALE

Updated 2/18/98